Iowa Statewide Interoperable Communications System Board

ISICS Tower Site Co-location requirements

This document has been assembled to provide an outline of the requirements, guidelines, engineering and related technical information for Local Public Safety (LPS) entities to co-locate antenna equipment, transmitters, receivers, associated cabling, etc. on the Iowa Statewide Interoperable Communications System (ISICS) tower sites.

Non-Public Safety and/or those who do not possess a Part 90 FCC 47 sub part B license are not a consideration in this document.

TOPICS ADDRESSED

1. Intermodulation study
2. Separate electrical power meter(s)
3. Loading analysis
4. Engineered drawings of equipment placement. Antenna placement, equipment placement in hut.
5. MOA

1:Co-Locating an ISICS site is subject to land owner and vertical structure owner approval.
2:Ground site analysis. Those approved LPS Agencies who wish to co-locate a site, are subject to all local zoning laws, permitting, environmental impact studies and all other applicable laws.
Available space to be determined in site study and\or a case by case basis. 25% of total space is reserved for ISICS expansion purposes.

3:Existing interior ISICS shelter. Approved LPS Agencies wishing to use space within an ISICS site are subject to following guidelines
A;25% of total interior site space is reserved for ISICS expansion.
B:25% of total interior site electrical capability is reserved for ISICS expansion purposes
C: 25% of total site interior site cooling capacity is reserved for future ISICS expansion purposes

4:Vertical Structure: Approved LPS Agencies wishing to occupy space on ISICS vertical site assets are subject to the following guidelines

A:25% of total of tower space is reserved for future ISICS expansion projects

B:Grounding of all antenna cabling will be done within 10 feet of antenna placed on tower and within 6 feet prior to leaving the tower. Additional grounding in the shelter shall be done within 18 inches of communications bulkhead. Transmission lines are to be connected to appropriate lightning arrestors which are connected to ground plate near or at communications bulkhead.

C: Additional grounding requirements should conform to most recent publication of NEC and Motorola R56 standards

D: Approved LPS Agencies requesting a particular antenna height are responsible for all expenses for licensing coordination and provide proof that antenna can be placed at requested height. Final engineering study may require that antenna be placed at a lower elevation on tower to avoid interference issues with ISICS system. In which case would require requesting agency to provide updated proof of licensed coordination.

E: Antenna is to be installed on tower utilizing industry best practices and follow all regulations where applicable.

F: Transmission cabling is to be installed using industry best practices to secure transmission lines to tower.

G: All antenna, cabling and means of securing to tower are subject to ISICS and MSI engineering approval.

3 Intermodulation is an interference that occurs when two (2) or more frequencies combine in a moment of time that causes undesirable operation within the receiving equipment. This type of interference could cause the receiving equipment to either not decipher the incoming signal fully or fail in its ability to receive in totality.

Those agencies wishing to co-locate on an ISICS site need to be prepared to assume any and all technical studies and expenses to ensure that the antennas, transmitting and receiving equipment, and other components will not create an intermodulation risk at that particular site. The results of these studies should conform to TIA standard 603.C and be reviewed by the ISICS Board before approval can be granted.

Should intermodulation issues arise after an approved study is complete and entity is already co-locating an ISICS site, ISICS system administrator or designee will contact the co-locating agency, and offending equipment will be shut down immediately.

5: Approved LPS agencies who wish to co-locate on an ISICS site are required to provide separate electrical service, and other associated equipment and assume all expenses to provide electrical service to power the equipment. All electrical service and grounding shall be installed separate of ISICS per current NEC and Motorola R56 Standards as of date of installation.

6: Site Loading Analysis. Sites are engineered at the outset to provide an ability for intended antenna(s) and cabling. Initial loading tests may consider additional loading but it is not a full consideration for future expansion.

Additional loading may compromise a site's integrity and will need to be addressed prior to any co-location taking place.

Agencies wishing to co-locate on an ISICS site will assume all expenses to conduct engineering studies where additional antenna and cabling placement is needed. Regardless as to what altitude the antenna is placed, all appropriate studies shall be conducted. All results should then be re-viewed by ISICSB prior to approval.

7: Stamped EngineeringDrawings. Any approved agencies wishing to co-locate on an ISICS site shall provide detailed, stamped engineered drawings. The drawings will include transceiver placement in hut, wiring diagrams from electrical service panel to equipment, transmission line entry-exit paths, antenna make and model with technical specifications, height of antenna placement.

8: Memorandum of Agreement (MOA)
Any agency wishing to co-locate on an ISICS site will be required to sign an MOA. The MOA may include items not discussed in this document. This may include but not limited to approval by ISICS and MSI.